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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,245	12/19/2001	Alexander L. Berestov	38.P1019	6958

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EXAMINER

AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,245

Applicant(s)

BERESTOV, ALEXANDER L.

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/2/02, 12/19/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-40, are rejected under 35 U.S.C. 103(a) as being unpatentable over Webber (U.S. patent 6,801,597) in view of Cosman (U.S. patent 6,006,126).

Regarding claim 1, Webber discloses a method for processing up to a plurality of radiographic images of a subject, said method comprising:

The steps of: capturing at least two visible light images of the subject, two or more of the visible light images in correspondence to at least one radiographic image, the at least two visible light images being captured by one or more visible light cameras, each visible light camera in a known geometric relation to a radiographic source (Fig. 1, column 7, lines 34-54, a plurality of radiographic projected images of the selected object);

calculating radiographic geometry of each radiographic image relative to the radiographic source and the subject (column 9, lines 16-30, computation and transformation);

generating three-dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry calculated in said

calculating step (column 8, line 60 through column 9, line 15, generating three-dimensional reconstructions from two-dimensional).

However regarding claim 1, Webber clearly discloses a methodology for analyzing medical images, and expressly discloses the color monitor is used to display cross-polarized stereoscopic image pairs (column 19, lines 50-59), but does not explicitly disclose “ stereoscopic analysis of the at least two visible light images and through reference to the known geometric relation between the one or more visible light cameras”. On the other hand Cosman in the same field of medical diagnostic systems teaches the actual object may be seen in stereoscopic stereo tactic visualization and identifiable points within that field, seen by both camera (column 15, lines 8-16).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Webber invention according to the teaching of Cosman because it provides visualize a surgical field in relation to the anatomy image, which can be implemented to diagnostic systems such as radiographic.

Regarding claim 3, Webber discloses a method according to claim 1, wherein the three-dimensional radiographic information includes a tomosynthetic image at a designated slice depth into the subject (column 4, lines 2-20, to generate a tomosynthetic slice through the selected object).

Regarding claim 4, Webber discloses a method according to claim 1, wherein the three-dimensional radiographic information includes a plurality of tomosynthetic images at a plurality of designated slice depths into the subject, the method further comprising the step of reconstructing a volume of the subject by combining the plurality of tomosynthetic images (see

claim 3, also column 4, lines 6-30, reconstructed images at varying slice positions through the selected are determined to create a three-dimensional representation of the selected object).

Regarding claim 5, Webber discloses a method according to claim 1, further comprising the step of registering one or more of the visible light images with the three-dimensional radiographic information (column 11, lines 5-18, tomosynthetic registration).

Regarding claim 6, Webber discloses a method according to claim 1, wherein the known geometric relation between the one or more visible light cameras and the radiographic source is adjustable (column 3, lines 26-46, adjusting the radiation source and comparisons between images).

Regarding claim 8, Webber discloses a method according to claim 1, further comprising the steps of: generating a surface topography of the subject by processing the visible light images; and registering the surface topography with the three-dimensional radiographic information (column 27, lines 50-62, generating three-dimensional and topographic slice).

Regarding claim 10, Webber discloses a method according to claim 1, wherein the three-dimensional radiographic information includes a zoom factor for correcting magnification error in at least one radiographic image (column 17, lines 5-24, geometric transformation to correct for differential magnification).

Regarding claim 11, Webber discloses computer-executable process steps stored on a computer-readable medium, said computer-executable process steps for processing up to a plurality of radiographic images of a subject, said computer-executable process steps executable to perform a method comprising the steps of: capturing at least two visible light images of the subject, two or more of the visible light images in correspondence to at least one radiographic

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image, the at least two visible light images being captured by one or more visible light cameras, each visible light camera in a known geometric relation to a radiographic source; calculating radiographic geometry of each radiographic image relative to the radiographic source and the subject through stereoscopic analysis of the at least two visible light images and through reference to the known geometric relation between the one or more visible light cameras and the radiographic source; and generating three-dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry calculated in said calculating step (see claim 1, also column 16, lines 8-13, refer to computer-executed process).

Regarding claim 21, Webber discloses a computer-readable medium that stores computer-executable process steps, the computer-executable process steps for processing plural radiographic images of a subject, the computer-executable process steps executable to perform a method comprising the steps of: capturing at least two visible light images of the subject, two or more of the visible light images in correspondence to at least one radiographic image, the at least two visible light images being captured by one or more visible light cameras, each visible light camera in a known geometric relation to a radiographic source; calculating radiographic geometry of each radiographic image relative to the radiographic source and the subject through stereoscopic analysis of the at least two visible light images and through reference to the known geometric relation between the one or more visible light cameras and the radiographic source; and generating three-dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry calculated in said calculating step (see claim 1, also column 10, lines 50-58, computer readable).

Regarding claims 2, 7, 9 and 20, it recites similar limitation as claims 1 and 4 are similarly analyzed.

Regarding claims 12-15, 22-25 and 32-35, it recites similar limitation as claims 2-5 are similarly analyzed.

Regarding claims 16-19, 26-30 and 36-40, it recites similar limitation as claims 6-9 are similarly analyzed.

Regarding claim 31, it recites similar limitation as claims 1 and 21 are similarly analyzed.

Other prior art cited

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (6,081,577) to Webber is cited for method and system for creating task-dependent three-dimensional image.

U.S. patent (5,872,828) to Niklason et al is cited for tomosynthesis system for breast imaging.

U.S. patent (3,940,619) to Ellingson et al is cited method for producing three-dimensional real image using radiographic oerspective views of an object.

U.S. patent (4,903,204) to Dobbins, III is cited for matrix inversion tomosynthesis improvements in longitudinal X-ray slice imaging.

U.S. patent (4,087,837) to Geluk is cited for X-ray picture coding.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2625
April 18, 2005

